


ABSTRACT

[000119] An apparatus and method for inverting a 4x4 source matrix. A source matrix is divided into four 2x2 sub-matrices. A plurality of sub-matrix products are subsequently calculated from the sub-matrices. Next, a determinant of the source matrix is calculated to form a determinant residue utilizing the previously computed sub-matrix products. Calculation of partial inverse for each sub-matrix is next performed, using the sub-matrix products and determinants of the sub-matrices. Finally, an inverse of each sub-matrix is calculated, utilizing the partial inverse sub-matrices and the determinant residue to form an inverse of the 4x4 source matrix. The method allows processors to store two floating-point elements within a Single Instruction Multiple Data (SIMD) register. Accordingly, a sub-matrix is represented using two SIMD registers, resulting in improved computational locality and efficiency. Other embodiments are described and claimed.